5. Research

An enormous responsibility rests upon those in charge of agricultural research. The Research Institution must supply the technical answers to hundreds of questions. Lack of answers will stall or greatly delay development. What kind of crops are practical for the areas, what varieties of a specific crop? What are best planting times and cultural methods? A great amount of plant introduction must be tried out. What are the water demands for various crops, what is the proper interval of irrigation? What pests attack the crop and what control measures are effective? What amounts of what types of fertilizers should be applied at what time and what profits will accrue? These are the kinds of questions research must answer if the Helmand Valley is to fully succeed. Such answers do not come over night.

An excellent start has been made. This effort should not be starved for lack of men or money. The U.S. should supply a high grade research advisor for a number of years to assist this work if desired by RGA.

6. Water Management

The problem of water management will become increasingly important with the passage of years. Wasteful use of water is far more important than the mere waste of the water since it also increases the severity of the salinity problem. Attaining better water management will be a gradual process along with changes in the cropping pattern, and more widespread use of summer crops. Research will ultimately develop sensible standards of water use and extension will ultimately demonstrate the practicability and profitability of proper use. In the meantime, however, it would be useful to maintain the present level of U.S. advisors to HVA on water management. The U.S. should give even more assistance when HVA is able to adopt a more aggressive plan to improve water management practices. In the meantime, the present staff of water use advisors might well assist the Planning Unit of HVA in determining the specific improvement needed and the plans for getting this improvement.

7. Mechanical Farm Operations

We are convinced that much of the present rough lands for which water is available can not originally be put into proper cultivation in any reasonable length of time with ox power. There are two general fields in which mechanical power is needed and which could materially speed up the development process. (a) Originally putting the land into proper shape for cultivation. (b) Initial farming operations until sub-division and settlement can take place.

a. Original land preparation. The rough nature of much land not now in cultivation will require considerable power to plow, disk, re-plow, level, etc. in preparation for a first crop. There is not now sufficient ox power to do that job. Since the annual plowing is the peak need for farm power and since the original land preparation requires even more power, it is not likely that the Valley will have enough

power even in the future to do this job except at a snail's pace. This is a good, practical place for mechanical power.

b. Regular large scale farming operations may also effectively use mechanical means. Here, however, it is well to understand the policy which RGA has in connection with such large scale farms. It is doubtful if U.S. public opinion would encourage U.S. assistance in establishing, operating and maintaining "state farms". On the other hand if it is the clear intention to have these large scale state farms only for the purpose of getting them into good cultivation before opening them to settlement, then U.S. assistance would not likely be subject to U.S. criticism. [1)]

In any event and to whatever degree Afghanistan imports farm or heavy duty tractors and other such machinery, it is earnestly suggested that RGA concentrates upon not more than two brands of machinery. Perhaps two brands of heavy duty machinery and two brands of regular farming types of mechanical equipment. For Afghanistan to have a large number of different makes of machinery would require an almost impossible job of maintaining a stock of spare parts and training of service people. Some countries have made arrangements with the manufacturers supplying the machinery to maintain a stock of spare parts in the country and to train service people.

8. <u>Land Development</u>

There remains the question of what part of H.V.A. should have the responsibility for handling the mechanical equipment if secured. The following suggestions are offered as a logical division of responsibility.

a. The Afghanistan Construction Unit has developed considerable work ability. It is equipped and staffed to handle large earth movement, canal building, heavy and light construction, rough land leveling and the like. It also has almost the only park of medium and heavy machinery. Obviously, it should continue to have responsibility for construction of main and other canals down to the final farm supply and drainage canals. It should also be given responsibility for initial land breaking and rough leveling on all lands where there is major earth moving needs.

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1) One of the difficulties of introducing crops such as cotton or sugar beets is the long period before there are sufficient seeds to crush or beets to process in order to make possible an economic factory unit. If the mechanized farm were to produce the minimum sufficient to make such processing economically feasible, local capital to build the factories might be attracted with such a market.

b. A new Division of the Agricultural part of H. V. A. should be developed to be responsible for the following two functions.

1) Beginning where ACU leaves off on rough lands or beginning initially on lands where leveling is of lessor importance, this unit would do land preparation. It would also do the fine leveling or smoothing, rebreaking, pulverizing, harrowing and in general get the land in final shape to cultivate. For such purpose, it must have machinery and some further development of service shops.

2) This unit should also be responsible for the farming operation on large tracts of land being prepared for settlement. The RGA may want to continue and enlarge its contract operation to handle large tracts. However, it is not likely that all needed farming operation can be done by contract. The machinery needed for direct farming operations could be serviced by the shops noted above.

In connection with these two functions, it must be emphasized that the present standard of "leveling" is not nearly as exacting as it must be for good water management. A much finer leveling and smoothing operation must be developed by the farmer, and the smoothing at least must be repeated every few years.

The Mission presently has an Agricultural Engineer fully capable of advising as to the kinds and amounts of machinery needed for the above two functions, if loan funds are available and the R. G. A. desires to acquire machinery, although it might be advisable to have some really top grade farm machinery man on a short time consultant basis to review the lists and give backstopping to the present Agricultural Advisory Staff.

SETTLEMENT POLICIES

The present system of land settlement whereby all grants of land in the Helmand are made in Kabul is building up a semi-permanent class of sharecroppers (either on the large farms in the Shamelon or as lessors of government land in Darweshan) and farm laborers. For example, there has been considerable movement of settlers from the Marja and some from Nadi Ali to become lessors in the Darweshan. A local phenomenon is the "waiters", families who have settled in the Valley in hopes of getting land but who under the present system do not have much hope of this and are likely to become either permanent farm laborers or less likely sharecroppers.

Currently, there is little land classified by the Government as available for settlement; but if the scheme for exchanging part of the privately owned lands under command of water in the Shamelon and elsewhere for water rights eventuates and the Darweshan is fully opened for settlement, this will not be the case. The opportunity should, therefore, be taken to analyze previous land settlement policy before preceding with the new lands. In the case of the Shamelon, an examination of the sharecroppers position should be made with the view of determining whether it is possible and desirable to set up credit and other facilities which will allow the current sharecroppers to become independent farmers.

The Darweshan presents a different opportunity. Firstly, there should be an examination of the policy of settling nomadic people directly on the land. The experience in Nadi Ali raises at least some questions to this policy; on the other hand, during the current cotton season, the nomads have demonstrated willingness and ability as casual laborers. If the Valley is to concentrate on cotton and sugar beets, there will be need for such a casual labor force. This seasonal work by the nomads might well serve as a transition to permanent settlement without presenting the type of shock which must have taken place in the case of the Nadi Ali settlers.

The mechanized farms will attract the "waiters" and the people currently working as laborers in the Shamelon as well as outside groups. During the proposed period in which the mechanized farms will serve as a transition between government and private farming, these people can learn the principles of both mechanized farming and the types of crops adaptable to the lands which are mechanized. Many of these people will, therefore, make logical farmer settlers when the mechanized farms are split into small individual farms.

To accomplish both the tasks in the Shamelon and in the case of the mechanized farms, it will be necessary for Kabul to delegate some of the land settlement responsibility presently concentrated there to Lashkar Gah. It will also be necessary to set up an office in Lashkar Gah for screening and assisting local land applicants. Studies should be started in the immediate future on methods of extending credit and other assistance to the successful applicants. If such a program is adopted, the RGA might consider requesting American technical advice on resettlement and farm credits at an appropriate time. The credit advisor should also beexperiencedin cooperatives. It is doubtful that single farms of the size proposed could support the cost of farm machinery or fully utilize any sizeable piece of machinery. They could, however, rent machinery from a cooperative.

HEALTH

Progress has been made in solving the health problems of the Valley. Both in the Lashkar Gah and the villages, smallpox, typhoid, and malaria have been brought more or less under control. The remaining major problems in the communicable diseases are tuberculosis and a vaccination program for diptheria. In the case of tuberculosis, USAID has agreed to provide mobile equipment for survey and the HVA is remodelling a building in Nadi Ali for a tuberculosis hospital.

Another major problem in preventive medicine is dysentery. Sanitarians have been placed in most of the major areas and are attempting to provide advice on sanitation, but no overall attempt has been made to solve the major problem, which is to bring good water to the villages through wells. There needs to be a promotional effort and perhaps at least partial provision of finances by the government in order to bring potable water to the villages.

A good deal of the health problems is economic in nature. The worst example of this is in Nadi Ali where nomadic people were settled without water or sanitary facilities. When as a result of poor soil, the farmers' resources dwindled, they lost interest, and there was a heavy death toll from tuberculosis and dysentery, with malaria giving a helping hand. This is a lesson that should be remembered in the settling of the Darweshan and other areas.

The Lashkar Gah hospital will provide high grade curative medical care to those who can reach it and be admitted. There is a question as to whether the economic base of Lashkar Gah and environs can support the type of hospital that has been built without a continuing subsidy.

There is no need for further outside studies of health conditions in the Valley. The problems are known: better and more maternal and child health care, universal vaccination for diptheria, the promised tuberculosis survey and increased care of this illness, more health facilities for the villages plus potable water, and health education in the schools.

The priority problem, therefore, is to find the additional resources both human and financial, needed to continue and accelerate the current progress being made in health.

EDUCATION

In the past few years, education facilities have increased on a large scale in the Helmand Valley. Village schools (the first three grades) serve most all of the villages. Many elementary schools (grades 4 to 6) have been established as villages or groups of villages have met the minimal requirements of 40 fourth grade pupils needed to establish an elementary school. The quality of teaching, however, remains poor in the village. Most schools are taught by untrained teachers while the pupil load in the elementary schools is excessively high for good teaching. The establishment of a Darul Mo' Allemein in the secondary school in Lashkar Gah (pupils spend the 7th and 8th grade at Lashkar Gah receiving general education plus some instruction in teaching techniques and the 10th year at the Kabul D. M. A. where there is a heavier concentration on pedagogy) promises some relief from this situation and is a major step in the right direction. The establishment of a "community school" in one of the larger villages with its aim of making the school an intregal part of the community is an experiment worth watching and fostering.

Lashkar Gah itself seems well provided with schools. The new comprehensive secondary school seems to be a well thought out project. The building under construction seems functional and the introduction of the arts and handicrafts will fill a genuine need. The education process seems to be better established in the Helmand Valley than in most parts of Afghanistan. As in the case of health, there is no need for surveys.

The need is for a greater number of trained personnel and the allocation of additional resources. Since education not only feeds itself as in the case of the D. M. A. 's and the university, but also provides the leaders for agriculture, civil and military government forces, etc., a case can be made for further allocation of assisting resources even at the sacrifice of other activities.

INDUSTRY

Several reports have been written on industry in the Kandahar area. The two more massive studies were the: "The Kandahar Industrial Park" by the Continental-Allied Company, 1959 and the "Helmand Valley Industrial Survey" by the International Engineering Company, 1955. In addition, the Ministry of Commerce has prepared studies on desirable export industries. The reports have a great deal of unanimity on the types of industries proposed, i.e., fruit and nut processing, cotton seed oil, beet sugar, leather tanning, tobacco processing, concrete and gypsum, etc. The first essential listed in the reports to the growth of industry in the Kandahar area is the availability of economical electric power. Presumably this will be available when the Arghandab power project is completed. The second element will be the availability of credit and foreign exchange. The subscription from local sources of approximately afs 40 million for the new fruit processing plant, demonstrated that both local enterprices and capital are available.

Studies have been made on the need for an industrial bank to provide services similar to those provided by industrial banks in other less developed countries, e.g., the Indian Industrial Credit Investment Corporation. Along with providing credit, such banks perform important policing functions; controlling the rate of profit withdrawal, insuring the necessary allowances for depreciation, assistance in export techniques, etc.

Determination of whether the industrial plants should be placed in Kandahar proper or other locations within the Helmand complex will depend on availability of power, labor, capital, proximity of markets, and transportation facilities. Separate studies will be required for each plant; sufficient overall studies are available for the general terms of reference. A small economics staff attached to the lending agency could well do the spot studies needed on a plant by plant basis.

The timing of industrial expansion will depend on growth in production of the local raw materials which will provide the base. For example, we have been told that the new Kandahar fruit processing plant has a raisin capacity of 10 tons of grapes per day; this would seem to absorb the grapes at this time. Volume of cotton oil products will depend on the growth in cotton production in the area.

KAJAKAI

The Kajakai dam site was not visited; however, the question of whether or not the power facilities at Kajakai should be developed is sufficiently important to warrant a separate note in this report.

Preliminary estimates indicate that the power potential of Kajakai may be approximately 120,000 kw. There is no doubt that power resources of this magnitude will be needed at some future time, but at the present juncture the rationale for building a power plant at Kajakai seems to be the proposed fertilizer plant. Other than this, implementation of the Arghandab project and possibly an increase in the capacity of the Girishk plant will satisfy present power needs.

The question, therefore, is whether a fertilizer plant should be built at this time. It is believed that such a project would be premature although there is no question that irrigation farming cannot be truly successful in the long run without the rather generous use of fertilizer. Before a commitment is made on a fertilizer plant, considerable research must be accomplished. It will be necessary to determine the most effective types of fertilizer for the Helmand lands and the correct amounts to be applied to the land. The farmer must learn how to use fertilizer, and show his acceptance of this technique by his purchases. The present price structure in the Valley will not support the additional costs of fertilizer and considerable economic research will be required to solve this problem. Studies on fertilizer and pricing should start immediately and have been suggested in this report. The power and fertilizer plants should be delayed until at least preliminary results are available on the above studies. There is little logic in producing fertilizer until farmers are willing to accept it in some quantities and are able to buy it.

ROADS

A fine network of roads has been developed in the Helmand which serves all parts of the Valley. These roads are adequate to meet all current needs. As traffic develops, it may be necessary to pave certain of the current gravelled roads, but this does not seem to be an immediate problem. Roads are distinct problems in Chakhan-sur where communications are excessively bad. The small population and the relatively small output, however, put forth considerable obstacles to declaring that any major road building activities could be economic. There is, however, an opportunity here to enlist the local communities in a series of self-help roads, possibly with some bulldozing assistance from the ACU. A basic road of this type would tie the area in with the rest of the nation and stimulate local agricultural production.

APPENDIX A

Documents Reviewed

1. Aide-Memoire - October 22, 1962

2. Certain cables reflecting HVA requests for review, evaluation and examination.

3. Kandahar Industrial Park - An examination and recommendation for Industrial expansion at Kandahar by the Continental-Allied Company, Washington, D. C., July, 1959.

4. Engineering Report on Development of Seraj Area. - Irrigation Canals by Morrison-Knudsen, Afghanistan Company, April, 1959.

5. Report on Development of Helmand Valley - An Evaluation, Analysis, Comments and Recommendations by Tudor Engineering Company, Washington, D. C., November, 1956.

6. "Project History" of Bureau of Reclamation activities in the Helmand Valley by U. S. Bureau of Reclamation, June, 1959 - December, 1961.

7. Afghanistan - Drainage and Related Problems - by C. R. Maierhofer, April, 1961.

8. Drainage and Related Problems of Irrigation in the Helmand Valley by C. R. Maierhofer of the U. S. Bureau of Reclamation, April, 1954.

9. Interim Report on Basin of the Hari Rud by U. N. Special Fund Team - June, 1962.

10. A Proposed Management Improvement Program for the Helmand Valley Authority - by the Public Administration Service, Chicago, January, 1959.

11. Helmand Valley Industrial Survey Phase I Report - by International Engineering Company (MK), San Francisco, November, 1955.

12. The Kabul, Kunduz and Helmand Valleys and the National Economy of Afghanistan - by A. Michel - (Report No. 5 Office of Naval Research), 1959.

13. End of Tour Report of Sam Logan.

14. A Number of Miscellaneous Documents in draft form written by various U. S. persons connected with the Valley.

15. Termination of Assignment Report of Reed Lewis, February 6.

16. E-1 Tables prepared by the Mission - December 22, 1961.

APPENDIX B

Areas Seen:

Kabul to Kandahar including Ghazni Mukur and Kalat

Immediate Kandahar Area

Tarnac

Lashkar Gah

Darweshan

Shamelon

Marja

Nadi Ali irrigation area

Marja to Chakhau - sur

Qala Mahamad

Chahar Burjak

Nadi Ali

Chakhau - sur to Farah

Farah to Herat

Lower Hari-Rud (Herat)

Lower Musa Qala and Sanguin Drainage basin by air.

INTRODUCTION

The Aide Memoire delivered to the Royal Government of Afghanistan on October 22, 1962 states that "the Helmand Valley Authority has sought assistance in undertaking a broad study of the overall potential of the Valley with a view to preparing comprehensive recommendations for a balanced development program. A two man team will visit Afghanistan in the immediate future to develop in common with Afghan officials the detailed objectives of such a study."

The two man team, E. N. Holmgreen and J. S. Benz, accompanied by Dr. R. Allen (of the Nathan Associates team advising the Ministry of Planning) as an observer, started its work on October 29, 1962. The first week was spent in studying the various reports that have been written in the past on development in the Helmand Valley and in talking to people in Kabul (a list of the reports is shown in Appendix A). In the second period, the team made visits to Kandahar, Lashkar Gah, and the Chakhan - sur. (Appendix B lists the places visited).

Comments and observations on these visits are given in the following sections of this report. Emphasis is placed on agriculture and in particular on the part irrigation plays for Agriculture in the Valley. The team believes that great progress has been made in the Helmand Valley. A full irrigation water supply is now available for some 300,000 acres, roads have been built, and outstanding efforts have been made in the field of education and health. The team feels, however, that progress in providing irrigation facilities has out-marched both the introduction of techniques and the use of such facilities to increase agriculture income. In other words, the time has come for investing available financial and expert resources in developing the human resources in the Valley in order that Afghanistan may harvest its capital investment. This conclusion is discussed in some detail in the section on agriculture which follows this introduction.

The primary questions facing the survey team are, however, whether a "broad comprehensive study" of the Helmand Valley is necessary at this time, and, if so, what form it should take. The team is impressed with the number of studies that have already been undertaken. Having read these studies and visited the Valley, the team finds that much of the material is still valid. It does not believe that a new overall study is needed at this time; it believes that there has been insufficient capitalization on previous studies.

Planning to be successful must be a continuous effort; basic facts may remain rather static, but continuous changes occur in the conditions that surround the basic facts. To adapt to these changes, it is necessary that an alert team be on the spot to constantly analyze the data collected both from operational and research work and to draw conclusions which can serve as the tools for management. This has not happened in the Valley, the Survey Team observed that there was no formal overall planning section in the Helmand Valley Authority. The team's major recommendation is, therefore, that such a planning section be created. It should consist of agricultural experts, economists, and engineers and should report

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directly to the Vice President of the Helmand Valley Authority. To advise the planning section, the survey team feels that the United States might well provide a topflight economist and agronomist, if the Royal Government of Afghanistan so desires. These men should serve the normal two year tour and, if desirable, return for a second tour in order that there will be continuity. No engineer is recommended as it is felt that the RGA, HVA, and the ACU assisted by the Bureau of Reclamation Team can supply engineers. On a shorter term basis, the Survey Team considers that an Agriculture Marketing Specialist, experienced in the impact on agriculture of price and trade policies as well as possessing a knowledge of simple or primary processing is needed.

The planning body recommended would not be sufficient unto itself. Rather, it would request studies by both Afghan and American talent available in the Valley. Several questions to be studied are suggested in the body of this report, e.g., water management, crops for dual-cropping, types of incentives needed to change current methods, livestock versus crops, etc. It would be wrong to attempt to establish priorities in this report; this must be determined as Valley development policy becomes apparent.

The Survey Team would, however, emphasize two particular fields in which detailed research is badly needed. The first is in the field of hydrology. The HVA has an hydrology section and the U.S. has continuously provided an advisor in the field for several years. The number of men available are insufficient to do more than establish the miniminal records necessary for this vital element. Records on the Helmand River are quite adequate; those on the tributaries are not. If the RGA concurs in the desirability of such data to the extent that it is willing to multiply the personnel currently available, the Survey Team believes that the current advisor or a replacement should be returned for another tour. In addition, a top American hydrologist should be brought in for a short period to review the existing data and to advise on future direction of the work.

The Survey Team believes the problems that arose in the case of Nadi Ali could have been avoided if an economic land classification study such as has just been made on the North Tarnac had preceded settlement. There does not appear to be, however, a land classification section in the HVA. Such a land classification section is essential before any future new settlement, for example, the Darwashan, is attempted. The U.S. is already providing one advisor in the Bureau of Reclamation Team for this purpose. If there is to be an all-out effort in land classification, the Survey Team believes it is desirable to continue this activity and, if necessary, an additional advisor be recruited by the Bureau of Reclamation.

The RGA has listed development of the Farah and Hari Rivers as part of the second Five Year Plan. The Survey Team suggests that if the hydrology and land classification activities listed above are undertaken, the HVA might well supply the personnel and supervision to do the preliminary work in these areas as well, through cooperative arrangements with other RGA Ministries.

All of the above applies to Agriculture. For the health and education fields, the Survey Team feels that the current direction is correct and that progress is restricted only by the paucity of human and financial resources. Concerning the subject of resettlement, the Survey Team states later in this paper that it may be desirable to bring in an expert on resettlement problems in order to best use the human resources now in the Valley.

In summary, the Survey Team does not believe a massive study of the Valley is necessary at this time. The team does believe that planning is necessary and that a vehicle must be created to do this on a continuous basis. Relatively few additional advisors are suggested, but this should not preclude newly created HVA Planning Section from requesting short term advisors as the need is seen.

AGRICULTURE

General Statement -

Despite the enormous task that lies ahead, the Helmand Valley has in fact made considerable progress by November 1962. Two dams have been built, irrigation and drainage canals have been completed, although considerable drainage remains to be done. Further and more detailed soil classification has been completed. Many schools have been built. The Institutions for Research and Extension have been established in basic form and considerable field work started. Electric power has been increased, towns built and roads constructed. Of still more importance, there has been substantial training of technical people and many important and costly lessons already been learned. These but illustrate the positive side of the progress that has in fact been achieved.

In looking back it is easy to see errors and perhaps the greatest error of all by both U. S. and Afghans has been that too much was expected too fast. Experience around the world as well as in the U. S. shows that such projects take from 20 to 30 years to reach their full potential.

The Helmand Valley has an annual runoff of about 6 million acre feet of water, of which nearly 2 million are now controlled and available for irrigation. The Valley has acceptable soil in substantial amounts and a climate permitting the production of many crops and most favorable indeed for certain of these crops. While the Valley has good potential it will take at least 15 years and probably 25 years to reach full production. The Valley can become a highly profitable economic segment of Afghan economy, but whether it will become such, will depend on the training of its people, from farmers to technicians, the careful attention to its present problems and the persistent year after year effort and determination to succeed by its government and its people.

PRINCIPAL PROBLEMS

There are certain general problems that are found in all such projects in what ever country the project may be. There are other important and priority problems that apply specifically to the Helmand Valley.

General Problems - These problems are continuous. They will be present decades from now although their form and solution will change as progress is made. They are the educational problem, the human problem and the biological and technical problem. The first two are very much more difficult than the last and progress with them will be slower.

The Educational Problem - The use of the term "Education" does not mean primary or secondary or vocational or university education although this type of education is included in the broad problem. We are concerned here in how to "educate" farmers and others to use better seed and better cultural methods, control insects, raise summer crops, use water properly, grow this or that particular crop

efficiently, handle livestock more profitably, do better work as builders, shop-keepers or as industrial workers. The Valley can never be fully successful until masses of people learn more of these things.

The Human Problem - This is probably the most difficult of the three. How can one get farmers to want to grow cotton or corn or any other crop? What will make people come to the Valley to settle? How can the nomads be induced to contribute to this giant effort? What sort of incentives are needed? What do the people really want and how they can be induced to want the things that improve the economy of the country? Why does a farmer continue to grow only one winter wheat crop now that he has water enough to grow a summer crop as well? Part of the human problem can be solved by education as the term is used above, but far more knowledge is needed in how the people think and why they think that way.

The Biological and Technical Problem - Given reasonable time, this problem is the easiest to handle. For the most part this is an agricultural research problem and to some extent is an extension problem. Research must always stay well ahead of the farmers and ahead of extension. What variety of cotton or wheat or corn or apple tree does best on a particular soil? What fertilizer in what amount will increase yields how much and would fertilizer use be really profitable to the user? What planting dates are best for what crops and how should water be used? What insects and diseases can be expected and how are they controlled? What type of drainage is needed? These are but a few of the biological and technical problems for which answers must be found. Research must supply the answers and extension should spread it to the mass of the farmers. Thus research and extension must be firmly established well before a project can even be expected to succeed. Neither extension or research people should be given regulatory, tax collecting or enforcemen duties as to do so will completely negate their acceptability and effectiveness for their educational function.

Specific Problems - There are several critically important specific problems on which attention must be centered if the Valley is to really succeed in a reasonable length of time:

1. Full Land Use

The overall important point is to make a success of what the Valley already has. The Valley has in the order of 300,000 acres of acceptable land now having access to a reasonable or an abundant year around supply of water. In many areas, half or more of this land is not producing yearly crops. Much land is cropped in alternate years and a very large acreage lies idle each year. It is obvious that an acre of land lying idle when water is available could be brought into yearly production without the expenditure of much additional capital. To bring water to some other area not presentl under water command would require, of course, much larger capital expenditures. An acre of land for which water is now available is just as valuable as an acre to

which water has yet to be brought. The big job, therefore, is one of getting all land presently under water command into full production. In addition, there is the matter of double cropping. One of the principal reasons for the project itself was to provide a year around supply so that an additional summer crop could be grown. Only a relatively small part of the project land is summer cropped. A summer crop on a hundred thousand acres of the existing project would be just as valuable as some new project of the same size.

If all of the present good land for which water is available is brought into annual crops and if summer cropping is fully used the project will succeed. If this is not done, the project will not be really successful. There is no point to extending the present project until this has been done. Neither is there any point in trying to recover the poorer lands already under water until the better lands are fully utilized, although pilot operation on the poorer lands are justified in order to work out fully and certainly the methods of treatment for these poor lands.

Of highest priority, therefore, is the adoption of a policy that sufficient manpower and resources will be devoted to the task of getting annual crops on all good land and summer crops on the great majority as well. This is a long term job and the U.S. should be willing to help.

2. Water Use Management

The second problem whose solution must go hand in hand with No. 1 above is that of proper water management. The Afghan farmer for generations has been mainly a winter wheat farmer who learned very well indeed how to handle a scarce amount of water. To people who for generations never had enough water, a year around adequate supply would indeed seem a blessing. The Valley development has given them that supply. While they know how to handle a scarce supply of water, they do not know enough about handling an abundant supply. Much water is wasted, salinity rates are increased and land which has never been troubled with salinity will be faced with this problem if the whole of water management is not improved. (Proper water management might well be at least a partial solution to having enough Arghandab water for the Tarnac).

3. Related Practices

Out of the above two overall basic problems a whole host of specific questions emerge. These questions become problems that require attention. Some of these are: (a) Drainage. This sort of problem will be one of continuous worry and work throughout the life of the project. In some cases, much trial and error will be needed before the practical answer is found. (b) The Economics of a Changing Cropping Pattern. This question needs immediate attention. Why does land lie idle? What incentives or disincentives influence farmers to plant or not to plant? Is farm power (animal and machine) the limiting factor? What summer crops are

adaptable and are they profitable to the grower? What are market possibilities for these summer crops at what prices? These are illustration of dozens of questions about which immediate study should be made, since much more information will be needed if farmers are to be influenced to farm every acre each year and double crop most of the land. (c) Research. Research becomes a problem only in the sense of how to get enough of it done. Its work must develop the answer to the many agricultural questions of what and how and when crops and animals can best produce. (d) Extension. This is the main institution on which the country will depend to take knowledge from where it is known and spread it around where it is needed. In a broad sense, it is an adult education process among farmers.

4. Planning Ahead

If concentrated effort and intelligent direction is given along the lines indicated above, then the Valley will need some sort of planning unit to coordinate planning which must be done. This planning should have a top flight Afghan Agricultural Economist and a top flight planning Engineer as the central points around which it might arrange its staff. The planning unit should avoid any attempt to duplicate on its own staff technical people already available in other parts of the HVA. For instance, if the "Engineering Division" or the "Construction Unit" already has drainage engineers and if the Agricultural Unit already has agronomists, then those technical people should be utilized by the unit for information and help in their respective fields. The planning unit should staff only with skills missing from other parts of HVA plus the overall people needed to give form and direction to the planning.

RECOMMENDATIONS

Any rapidly developing country can easily slip into a position where its appetite gets ahead of its digestion. The Helmand Valley had done an enormous amount of basic construction work. Its farming effort has not nearly kept up. If the country is to adopt a sensible policy of making full use of the potential of the Valley and of the large expenditures already made, several essential steps will need attention.

1. Planning

A first class planning unit is needed in HVA - not only will such a unit attack the specific current problems noted above, but will also be in a position to do the highly necessary planning for the next five to 25 years. This planning unit should also become the center around which study teams looking into specific matters might function. Should HVA so desire the U.S. might provide an experienced Agricultural Economic Advisor as a nucleus around which other short term or long term U.S. planning assistance might be attached. The present Bureau of Reclamation staff in the Valley could furnish planning engineering advice.

2. Marketing

A very urgent need is for comprehensive study of the Agricultural Economic and Marketing situation in the Valley. There must be reasons why lands lay idle, why summer cropping is not more widespread. A thorough study of the economic and social situation that slows this development is highly essential. Then again, what sort of summer cropping would be most profitable -- what is the outlook for fruits and vegetables, for cotton and corn? What effect do price policies or marketing policies have on the willingness of farmers to adapt a more intensive cropping system? In short, what are the economic influences on the present cropping system and what changes are needed to get a more intensive cropping pattern that would use the total resources more fully? It is here that U.S. assistance might be most useful. Predicated on the willingness of the R.G.A. and H.V.A. to set up a planning unit of H.V.A. and to assign an agricultural economist and planning engineer of its own to the unit, then the U.S. might well furnish a study or survey team to assist in this special economic study.

This team might consist of the following:

a. One broad gauged Agricultural Economist with knowledge of irrigated agriculture. This is in addition to the overall agricultural economist suggested above as the top advisor to the planning unit.

b. An experienced agronomist in irrigation farming.

c. An Agricultural Marketing Specialist, having some knowledge of price and trade policies as it effects agriculture as well as knowledge of simple or primary processing.

d. This team may be supplemented by members of the present USAID Agricultural staff as needed. Such skills as Agricultural Engineering, Agricultural Extension, Agronomy, Livestock and the like are available to some degree and could contribute a great deal to the effort.

In the broadest of terms, the objective of the study would be to determine the economic and other marketing factors which cause farmers to do what they are presently doing and what adjustment, modification or change in these factors are needed to induce farmers to use the lands of the Valley more intensively. The study has so many facets that it will likely take a full two years. Probably the Economist and perhaps the Agronomist may be needed for an additional period. However, this may be determined later.

3. Land Classification

Further development of existing watered land will require more detailed and more extensive knowledge of the soil and its limitations. Soil surveys as used

initially by Morrison-Knudsen Afghanistan and subsequent effort were designed to supply rough inventories of land classes which would locate lands obviously not suitables for cultivation at reasonable cost, and to give a rough idea of all soil types.

A much finer land classification should be made to translate all significant data including a better Economic appraisal, into an overall evaluation of the relationship of each type of land to the cost of development. An illustration of work of this kind is that done by Joseph C. Mir in the Tarnac. This work should be continued immediately especially in the Shamelan and Darweshan area. Such work will delineate the better areas on which work should first be done, water first supplied and development first take place. Limitation in conducting this work will be the availability of Afghan Technicians who could get training and experience in the process. If as many as two Afghan technical people could be supplied, then a U.S. soil scientist should be supplied. While this work is highly essential and should be done immediately to keep ahead of the actual development, assistance by the U.S. should be predicated on the policy of helping HVA do this job rather than taking on the task of doing the job for HVA. The U.S. should, in fact, respond to requests for help in this field in proportion to the Afghan ability to designate its own technicians with responsibility for the work. The work can be done faster and could cover a wider area of the Valley if more Afghan technicians were available. This would involve more than one U. S. scientist.

4. Hydrology

The planning unit of HVA will need to expand its work in establishing recording stations and maintaining records, and evaluating stream flow data. The amount and exactness of such hydrological data essential to good planning increases as use is made of the last of the available water in an area. Planning to use the first 2 million acre feet of an estimated 6 million total annual availability might get by with somewhat sketchy stream flow data. As attempts are made to use the second and third 2 million acre feet, it is obvious that far more exacting knowledge of stream flow is needed to avoid very costly mistakes. Assuming that HVA will want to extend its irrigation to additional lands in the future and that it might also want to consider better flood control measures, the maintenance of a continuous and fully adequate record of stream flow becomes mandatory. A good start has already been made. The Planning Unit of HVA should see (a) that all the main tributaries of the Helmand Watershed are covered by stream flow records and that these records are continuously and permanently maintained. [1]The U.S. is now providing a technician to assist in this matter and except as noted below, this is probably about all the help needed.

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1) The Government of Afghanistan is also interested in such streams as the Hari-Rud and Farah-Rud. There is no reason why HVA should not also establish adequate stream flow stations on these rivers as a service to the government. If the Hari-Rud is to be developed as early as 5 to 10 years from now, such information is absolutely essential. The U.S. Advisor should be made available to assist if desired by the RGA.

THE HELMAND VALLEY

An Overall Review

Report by

John S. Benz and E. N. Holmgreen

to U. S. Agency for International Development/Afghanistan.

November 22, 1962

TABLE OF CONTENTS

Mr. Harold E. Schwartz, Director
USAID Mission
Kabul, Afghanistan

Dear Director Schwartz:

In accordance with discussions with A. I. D. officials in Washington, your instructions, and in line with the AIDE Memoire of October 22, 1962, we have had a broad overall look at the Helmand Valley and the Farah and Herat areas.

We have examined a large number of Reports, Studies and Surveys (Appendix A) and visited the areas shown in (Appendix B).

We have talked to U. S. Mission people from technicians to administrators and with Afghans from top officials to farmers. We have had cheerful, prompt, and hearty cooperation everywhere. We particularly appreciate your assignment of Mr. Philip Nalder to guide our visit. His arrangements worked without hitch, he anticipated every eventuality and did a most superior job in every respect.

We acknowledge a similar debt to numerous others on your staff and to many Afghans, who were equally as helpful but who are not mentioned specifically, simply because the list would be too long.

Since both of the undersigned have had prior time in Afghanistan and a more than usual interest and regard for the country, the assignment has been welcome, interesting, and from our viewpoint, highly satisfactory.

We submit herewith our report,

Sincerely,

John Benz
NESA Region - A. I. D.
Washington 25, D. C.

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